

**AN ECOLOGICAL CHARACTERIZATION STUDY OF THE CHENIER PLAIN COASTAL ECOSYSTEM OF LOUISIANA AND TEXAS** was prepared for the National Coastal Ecosystems Team, Office of Biological Services, U.S. Fish and Wildlife Service. James G. Gosselink, Louisiana State University, was principal investigator. Funding was provided by the Office of Research and Development, U.S. Environmental Protection Agency.

**Copies of Volume I (Narrative Report) FWS/OBS-78/9, Volume II (Data Source Appendix) FWS/OBS-78/10, and Volume III (Atlas) FWS/OBS-78/11, may be obtained from:**

**National Coastal Ecosystems Team  
U.S. Fish and Wildlife Service  
NASA-Slidell Computer Complex  
1010 Gause Blvd.  
Slidell, LA 70458**

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- 3A and 3B – Chenier Plain Habitat Groups**
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- 5A and 5B – Canal and Point Source Discharges**
- 6A and 6B – Special Features**

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**The Biological Services Program was established within the U.S. Fish and Wildlife Service to supply scientific information and methodologies on key environmental issues that impact fish and wildlife resources and their supporting ecosystems. The mission of the program is as follows:**

- To strengthen the Fish and Wildlife Service in its role as a primary source of information on national fish and wildlife resources, particularly in respect to environmental impact assessment.
- To gather, analyze, and present information that will aid decisionmakers in the identification and resolution of problems associated with major changes in land and water use.
- To provide better ecological information and evaluation for Department of the Interior development programs, such as those relating to energy development.

Information developed by the Biological Services Program is intended for use in the planning and decisionmaking process to prevent or minimize the impact of development on fish and wildlife. Research activities and technical assistance services are based on analysis of the issues, a determination of the decisionmakers involved and their information needs, and an evaluation of the state of the art to identify information gaps and determine priorities. This is a strategy that will ensure that the products produced are disseminated are timely and useful.

Projects have been initiated in the following areas: coal extraction and conversion; power plants, geothermal, mineral, and oil-shale development; water resource analysis, including stream alterations and western water allocation; coastal ecosystems and Outer Continental Shelf development; and systems inventory, including National Wetland Inventory, habitat classification and analysis, and information transfer.

The Biological Services Program consists of the Office of Biological Services in Washington, D.C., which is responsible for overall planning and management; National Teams, which provide the Program's central scientific and technical expertise and arrange for contracting biological services studies with states, universities, consulting firms, and others; Regional Staff, who provide a link to problems at the operating level; and staff at certain Fish and Wildlife Service research facilities, who conduct in-house research studies.



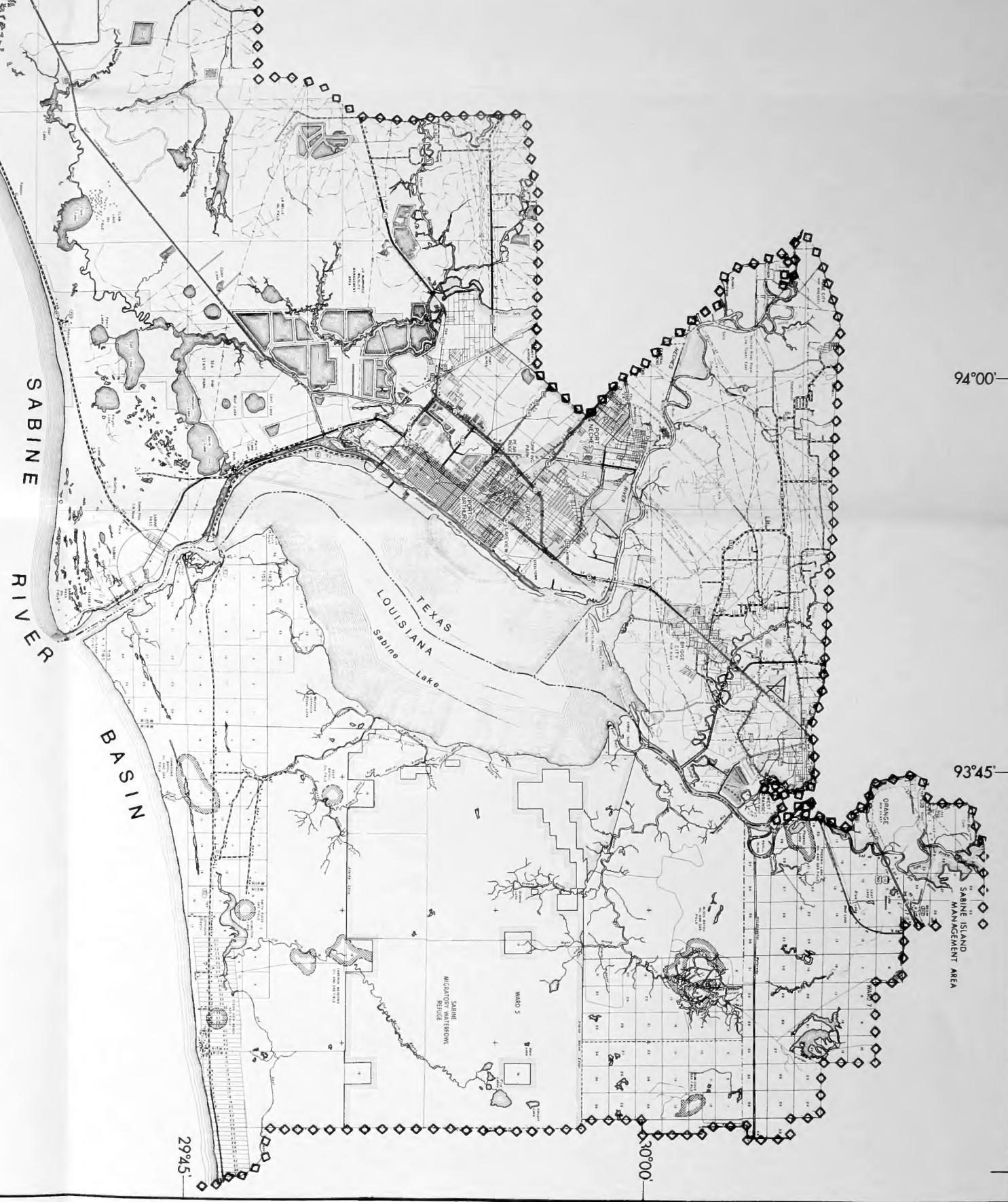






Index  
Map

29°15'





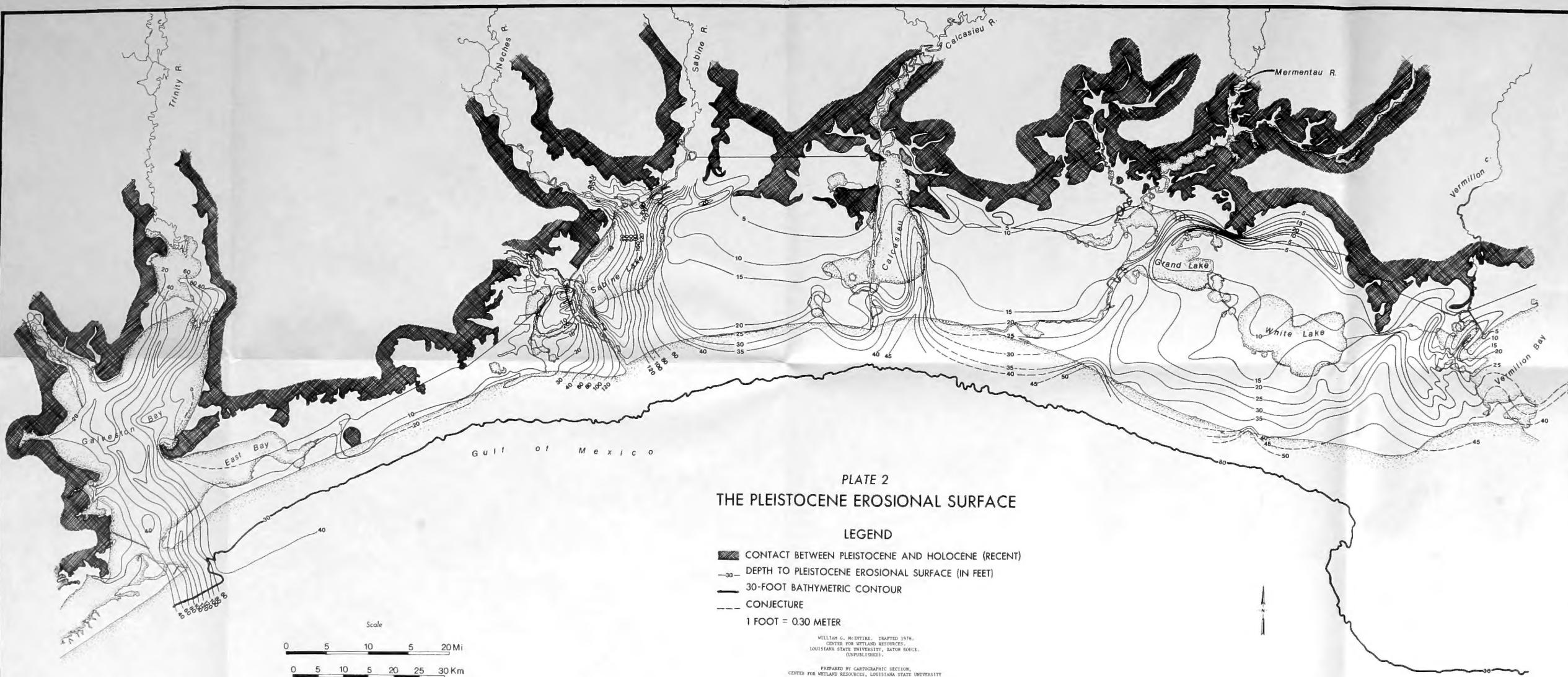




PLATE 3A  
CHENIER PLAIN HABITAT GROUPS

LEGEND

- AQUATIC -permanently flooded, non-vegetated inland open water and nearshore Gulf habitats.
- WETLANDS -periodically flooded lands characterized by emergent vegetation. See Plate 4
- AGRICULTURE -cultivated cropland and improved pasture.
- RIDGES AND UPLAND FOREST -naturally vegetated cheniers, levees, spoil banks, Pleistocene islands, and prairie surface.
- URBAN -land areas developed for residential and industrial use.

BASIN BOUNDARY

PREPARED FROM UNITED STATES GEOLOGICAL SURVEY 1974-75, 1:24,000  
QUADRANGLES, ADVANCED PRINTS.  
NASA HIGH ALTITUDE FALSE COLOR INFRARED PHOTOGRAPH  
MISSION 289 HOLD 7, 1974.

PREPARED BY CARTOGRAPHIC SECTION,  
CENTER FOR WETLAND RESOURCES, LOUISIANA STATE UNIVERSITY

PREPARED FOR UNITED STATES FISH AND WILDLIFE SERVICE, AN ECOLOGICAL  
CHARACTERIZATION STUDY OF THE CHENIER PLAIN COASTAL ECOSYSTEM OF  
LOUISIANA AND TEXAS. FWS/OBS-78/11, AUGUST 1979.

Scale  
0 1 2 3 4 5 Mi  
0 1 2 3 4 5 6 7 8 Km

94°23'

94°15'

94°00'

93°45'

93°30'

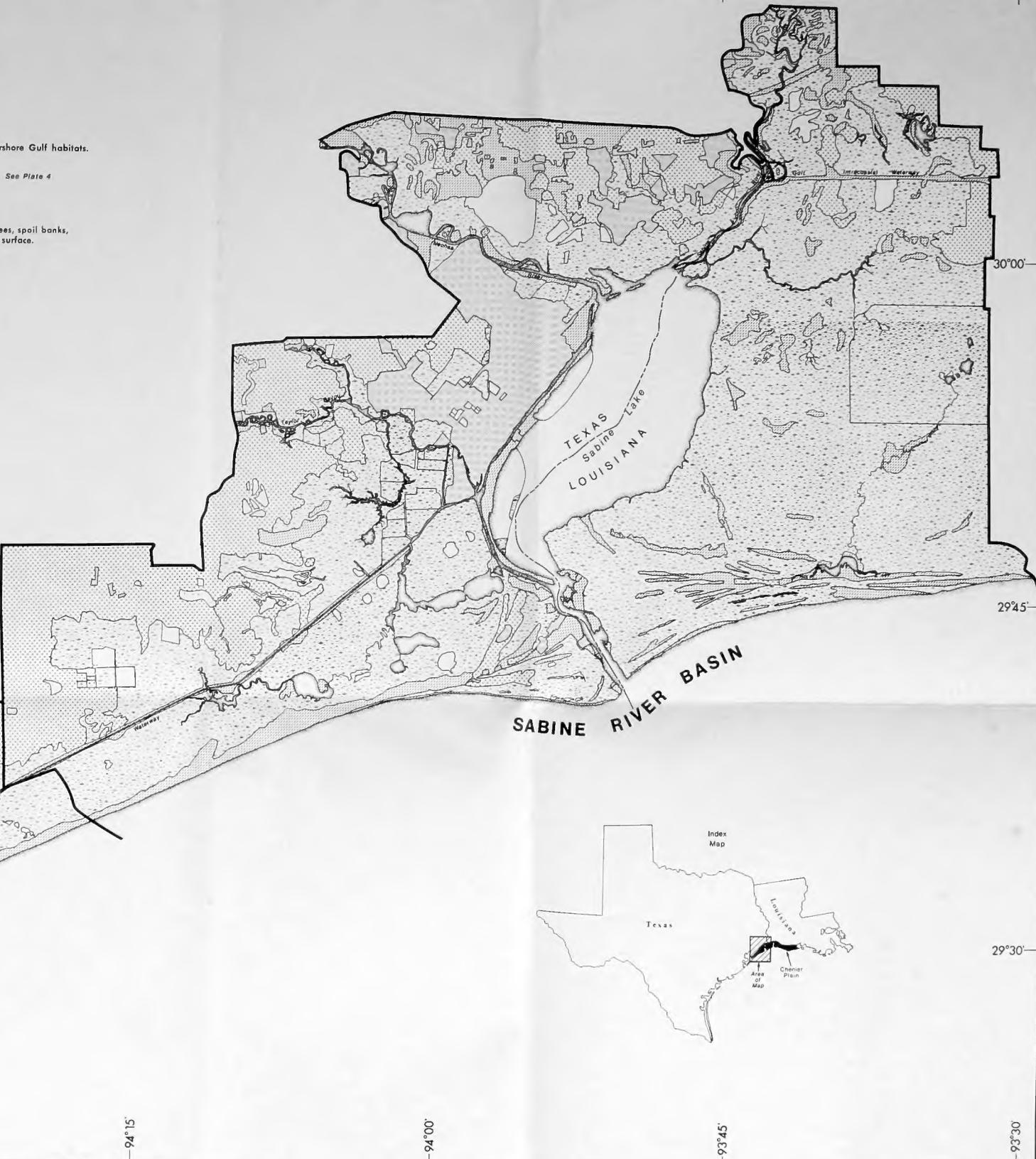




PLATE 4A  
CHENIER PLAIN WETLAND HABITATS

LEGEND

NON-WETLAND HABITATS

- SALT MARSH - saline intertidal marshes and associated small ponds, dominated by smooth cordgrass (*Spartina alterniflora*), with saltgrass (*Distichlis spicata*) and blackrush (*Vuncus americanus*) common.
- BRACKISH MARSH - intertidal marshes and associated small ponds dominated by saltmeadow cordgrass (*Spartina patens*) and saltgrass; salinities generally less than 10‰.
- INTERMEDIATE MARSH - marshes and associated small ponds, periodically flooded with nearly fresh water, but occasionally by brackish water. Dominated by saltmeadow cordgrass, bulrush (*Sagittaria falcata*), and seashore paspalum (*Paspalum vaginatum*).
- FRESH MARSH - marshes flooded by fresh water, and with a diverse flora dominated by maidencane (*Panicum hemitomon*), bulrush, and alligatorweed (*Alternanthera philoxeroides*).
- IMPOUNDED MARSH - marshes surrounded by dikes, spoil banks, or natural levees that modify normal flooding. These exist in saline to fresh areas. They may be permanently flooded or pumped dry, but all are dominated by native emergent wetland vegetation (as opposed to impounded agricultural land).
- SWAMP FOREST - forested freshwater wetlands with diverse flora dominated by baldcypress (*Taxodium distichum*) and tupelo (*Nyssa aquatica*).

BASIN BOUNDARY

PREPARED FROM UNITED STATES GEOLOGICAL SURVEY 1974-75, 1:24,000  
ORTHOPHOTO QUADRANGLES, ADVANCED PRINTS

CHARNOV, R. 1972. VEGETATION OF WATER AND SOIL  
CHARACTERISTICS IN THE CHENIER PLAIN REGION.  
LOUISIANA AGRICULTURAL RESEARCH STATION BULLETIN 664.  
FISHER, W. L., J. H. MCGOWEN, L. F. ARONI, JR., AND  
CRAY, C. G. 1972. ENVIRONMENTAL GEOLOGIC ATLAS OF  
THE CHENIER PLAIN COASTAL ECOSYSTEM OF  
LOUISIANA AND TEXAS. BUREAU OF ECONOMIC GEOLOGY, UNIVERSITY OF TEXAS AT  
AUSTIN.

1973. ENVIRONMENTAL GEOLOGIC ATLAS OF THE  
TEXAS COASTAL ZONE: BEAUMONT-PORT ARTHUR AREA.  
BUREAU OF ECONOMIC GEOLOGY, UNIVERSITY OF TEXAS AT  
AUSTIN.

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Scale  
0 1 2 3 4 5 6 7 8 Km  
0 1 2 3 4 5 6 7 8 Mi

94°15'

94°00'

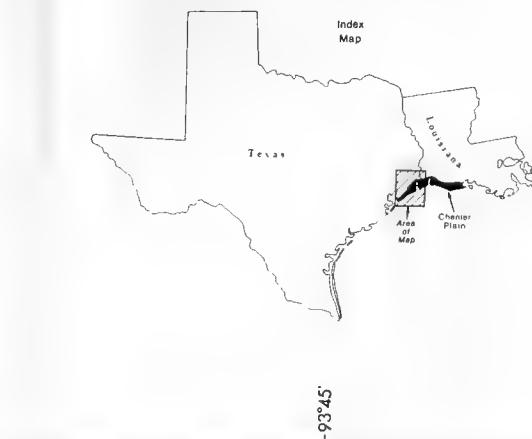
93°30'

30°00'

29°45'

29°30'

93°45'



SABINE RIVER BASIN  
EAST BAY BASIN

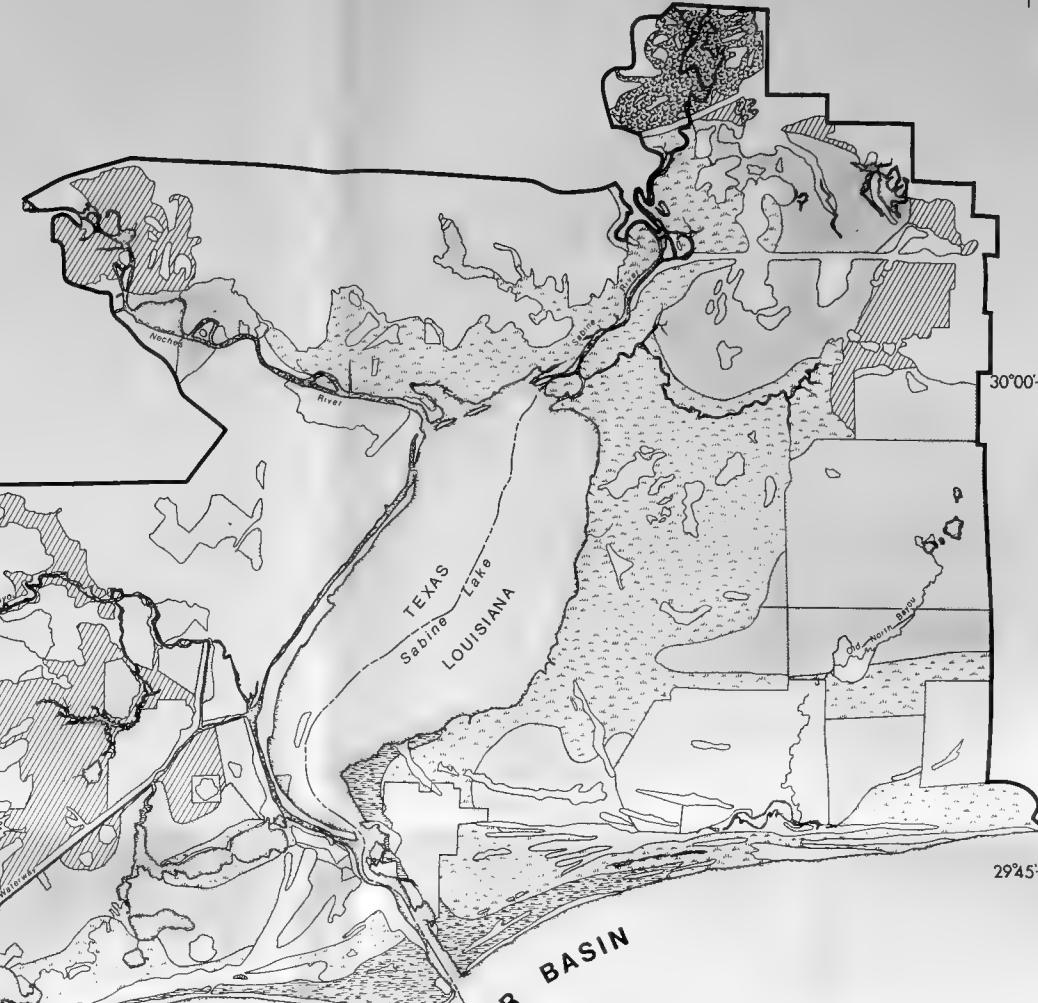












PLATE 1B  
INDEX MAP

#### LEGEND

### Basin Boundary

MODIFIED FROM TEXAS DEPARTMENT OF  
HIGHWAYS AND PUBLIC TRANSPORTATION  
COUNTY HIGHWAY MAPS, 1976.

AND  
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT  
OFFICE OF HIGHWAYS  
PARISH HIGHWAY MAPS, 1976.

PREPARED BY CARTOGRAPHIC SECTION,  
CENTER FOR WETLAND RESOURCES, LOUISIANA STATE UNIVERSITY

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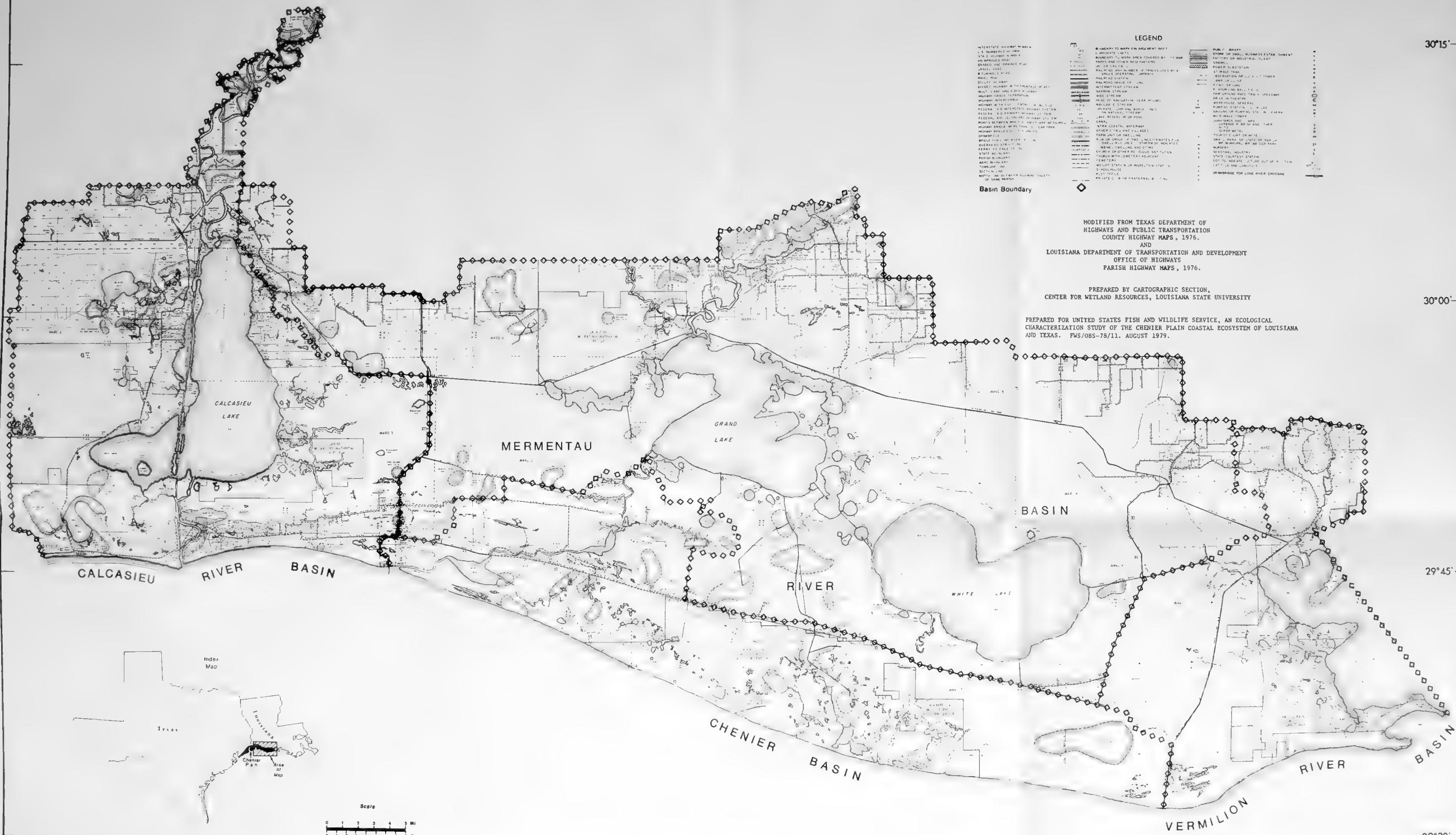




PLATE 3B  
CHENIER PLAIN HABITAT GROUPS

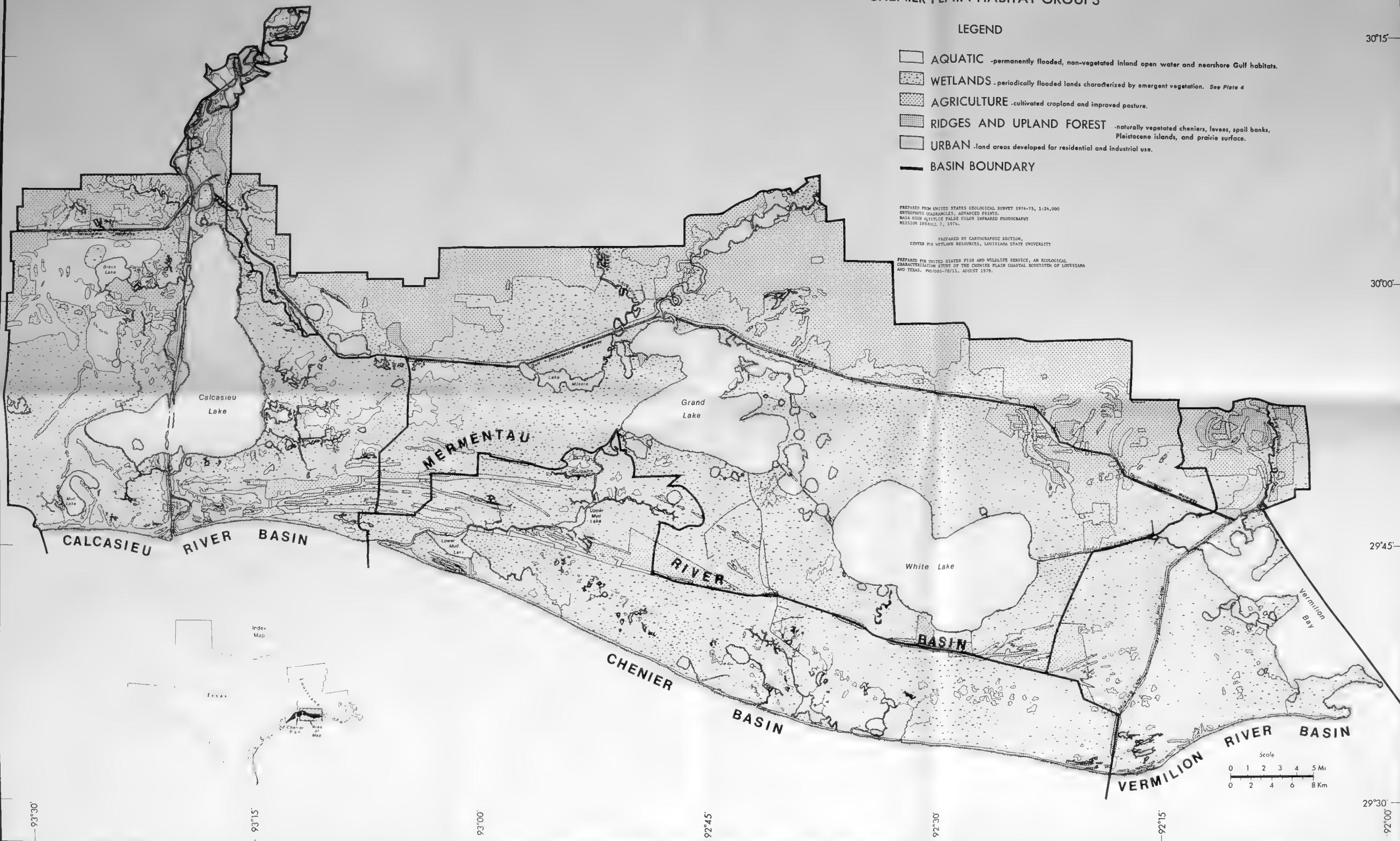
## LEGEND

- AQUATIC** -permanently flooded, non-vegetated inland open water and nearshore Gulf habitats.
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— BASIN BOUNDARY

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NASA HIGH ALTITUDE FALSE COLOR INFRARED PHOTOGRAPHY  
MISSION 1289, FOLL. 7, 1974.

PREPARED FOR UNITED STATES FISH AND WILDLIFE SERVICE, AN ECOLOGICAL  
CHARACTERIZATION STUDY OF THE CHEMIER PLAIN COASTAL ECOSYSTEM OF LOUISIANA  
AND TEXAS. FWS/OBS-78/11. AUGUST 1979.









**PLATE 5B**  
**CANALS AND POINT SOURCE DISCHARGES**  
**LEGEND**

INDUSTRIAL AND MUNICIPAL  
POINT SOURCE DISCHARGE

①AMOCO PROD. CO.	⑥GULF COAST ALUMINUM	⑯LAKE CHARLES-B&C
②GULF PROD. CO.	⑦W. R. GRACE INC.	⑰HOLLYWOOD
③STEED FISH CO.	⑧PPG INDUSTRIES	⑯WEST LAKE
④ZAPATA, PROTEIN	⑨CITIES SERVICE-POWERHOUSE	⑯LAKE CHARLES-A
⑤GULF MENHADEN CO.	⑩HERCULES INC.	⑯LOUISIANA MUD CO. INC.
⑥LOUISIANA MENHADEN CO.	⑪CERTAIN-TEED INC.	⑯DRESSER MCGOCBAR
⑦HUNT OIL CO.	⑫BIG THREE IND.	⑯TENNESSEE GAS PIPELINE CO.
⑧AMOCO PROD. CO.	⑬MOBIL OIL-WELLS	⑯CONTINENTAL OIL CO.
⑨TEXAS PACIFIC OIL-CRUDE PROD.	⑭CONTINENTAL CARBON	⑯AMOCO PRODUCTION CO.
⑩AMOCO PROD. CO.	⑮KCS RAILWAY	⑯AMOCO PRODUCTION CO.
⑪DOLIN CORP.-BRINE PROD.	⑯IDEAL CEMENT	⑯TEXACO INC.
⑫SHELL OIL-CRUDE PROD.	⑰PPG INDUSTRIES	⑯SEA COAST PRODUCTS
⑬AMOCO PROD. CO.	⑱DRESSER INC.	⑯PHILLIPS PETROLEUM CO.
⑭TEXACO-WELLS	⑲CONT. OIL REFINERY	⑯SHELL OIL CO.
⑮AMOCO PROD. CO.	⑳SERVICE ICE CO.	⑯SUPERIOR OIL CO.-LOWRY GAS PLANT
⑯GULF OIL-WELLS	㉑DOLIN CORP.	⑯AMOCO PRODUCTION CO.
⑰AMOCO PROD. CO.		

CANALS

 CANALS

PREPARED FOR UNITED STATES GEOLOGICAL SURVEY 1974-75 1:24,000  
ORTHOPHOTO QUADRANGLES, ADVANCED PRINTS.  
UNITED STATES GEOLOGICAL SURVEY, LATEST EDITION 1:24,000 AND 1:62,500  
SCALE. 1:24,000 SCALE IS PREFERRED.  
UNITED STATES ARMY CORPS OF ENGINEERS 1969 UNCONTROLLED PHOTOMOSAICS  
LOUISIANA DEPARTMENT OF PUBLIC WORKS FIELD DATA  
POINT SOURCE INDICATORS  
DRAFTS AND PLANS  
1:24,000 SCALE COOPERATIVE GULF OF MEXICO ESTuarINE  
INVENTORY AND STC—TEXAS. AREA DESCRIPTION, U.S. DEPT  
OF COMMERCE, NOAA, NMFS, BEPT, NMFS CCR-393, SEATTLE, WASH 119 P.

ARED BY CARTOGRAPHIC SECTION,  
ND RESOURCES, LOUISIANA STATE UNIVERSITY

PREPARED FOR UNITED STATES FISH AND WILDLIFE SERVICE,  
AN ECOLOGICAL CHARACTERIZATION STUDY OF THE CHENIER PLAIN COASTAL  
ECOSYSTEM OF LUMINAIS AND TEXAS. FWS/OBS-78-11 AUGUST 1979

30°T

30°00'

299

29°3

**Legend for Oil Wells and Refineries:**

- ① SHELL OIL-CRUIDE PROD.
- ② DRESSER INC.
- ③ CONT. OIL REFINERY
- ④ SERVICE ICE CO.
- ⑤ SUPERIOR OIL CO.-LOWRY GAS P.
- ⑥ AMOCO PROD. CO.
- ⑦ AMOCO PROD. CO.
- ⑧ TEXACO-WELLS
- ⑨ AMOCO PROD. CO.
- ⑩ GULF OIL-WELLS
- ⑪ AMOCO PROD. CO.
- ⑫ OLIN CORP.
- ⑬ PHILLIPS PETROLEUM CO.
- ⑭ SHELL OIL CO.
- ⑮ AMOCO PRODUCTION CO.

**Map Labels:**

- Gulf Intracoastal Waterway
- Black Lake
- Calcasieu Lake
- Calcasieu River BASIN
- MERMANTAU RIVER
- CHENIER BASIN
- White Lake
- Vermilion Bay
- VERMILION RIVER BASIN
- Grand Lake
- Lake Moultrie
- Lower Mud Lake
- Upper Mud Lake
- Pointe au Chien
- Diemer, R. A., 1971. COOPERATIVE GULF OF MEXICO ESTUARINE INVENTORY AND STUDY-TEXAS. AREA DESCRIPTION. U.S. DEPT. OF COMMERCE, NMFS, NMFS CIRC-393, SEATTLE, WASH. 119 P.
- PREPARED BY CARTOGRAPHIC SECTION, CENTER FOR OCEANIC RESOURCES, LOUISIANA STATE UNIVERSITY
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- Scale 0 1 2 3 4 5 Mi
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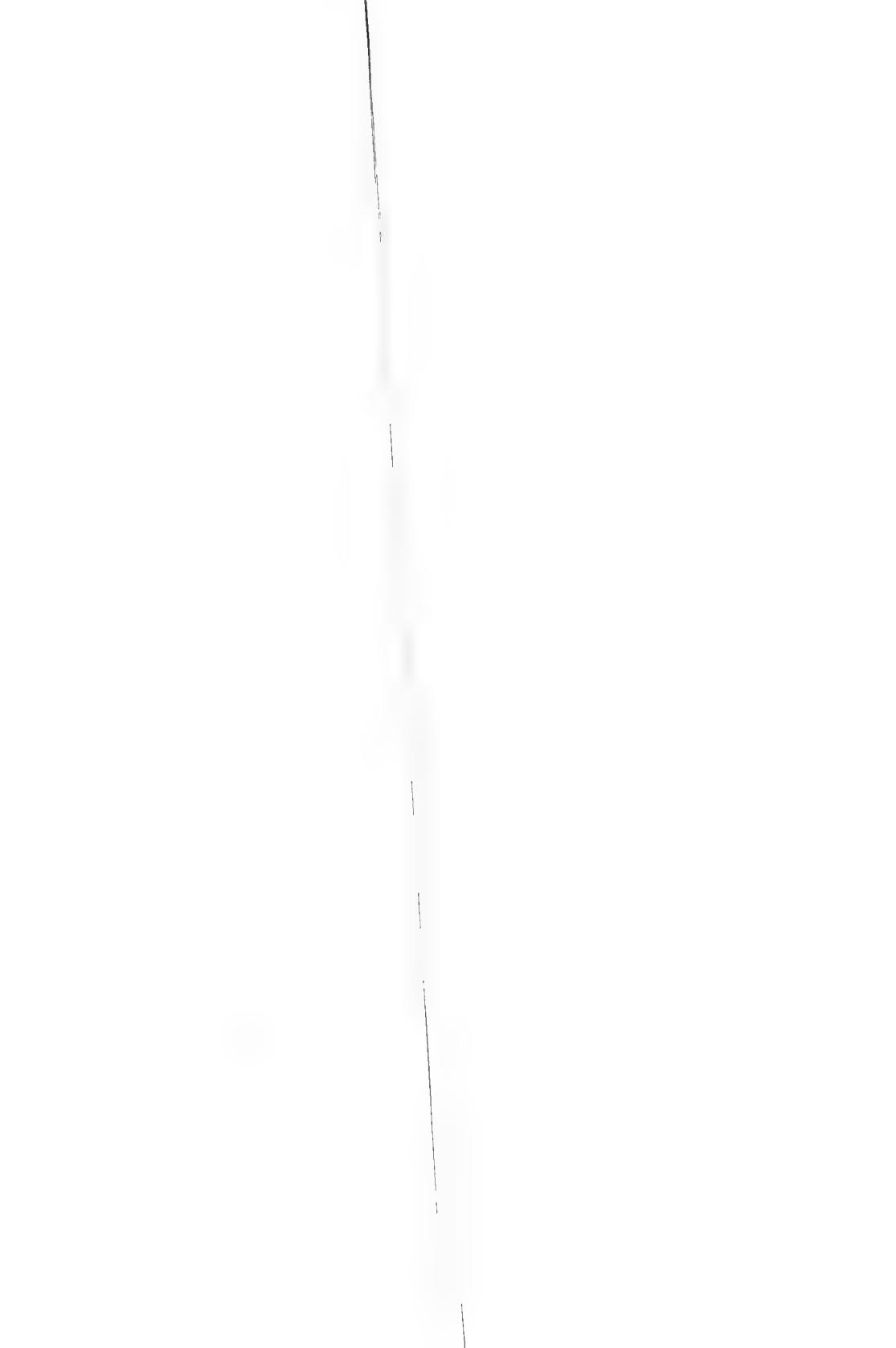
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29°







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SYSTEM OF LOUISIANA  
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I L. Cordes and

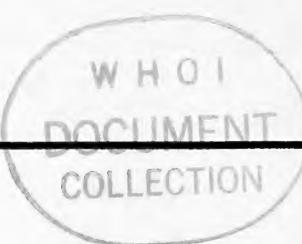
(FWS/OBS-78/10)

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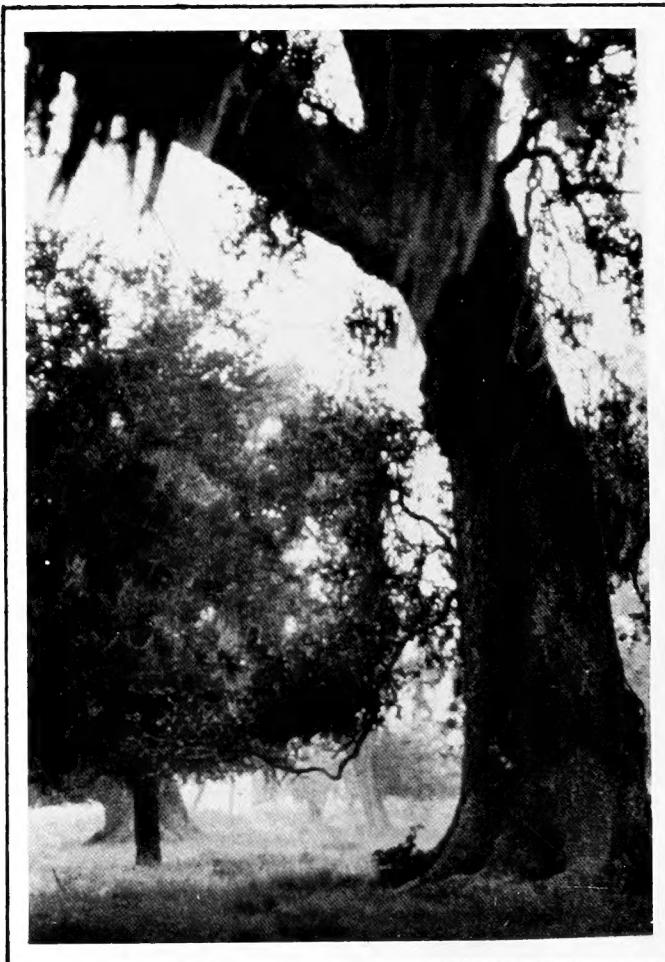
Biological Services Program

FWS/OBS-78/11  
August 1979



**An Ecological Characterization Study of the  
Chenier Plain Coastal Ecosystem of  
Louisiana and Texas**

**VOLUME III  
ATLAS**



*Interagency Energy-Environment Research and Development Program*

OFFICE OF RESEARCH AND DEVELOPMENT  
U.S. ENVIRONMENTAL PROTECTION AGENCY



AND

Fish and Wildlife Service

**U.S. Department of the Interior**

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MBL/WHOI



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